DOCUMENT RESUME

ED 352 632 CS 011 130

AUTHOR Manzo, Anthony V.; And Others
TITLE Dialectical Thinking: A Generative Approach to Critical/Creative Thinking.
PUB DATE Dec 92
NOTE 25p.; Paper presented at the Annual Meeting of the National Reading Conference (42nd, San Antonio, TX, December 2-5, 1992).
PUB TYPE Speeches/Conference Papers (150) -- Viewpoints (Opinion/Position Papers, Essays, etc.) (120) -- Information Analyses (070)

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS *Creative Thinking; Higher Education; Instructional Innovation; Learning Strategies; Secondary Education; *Teaching Methods; Teaching Models; *Thinking Skills
IDENTIFIERS *Dialectical Reasoning; *Dialectical Thought; Socratic Method

ABSTRACT

Dialectical thinking has values for education that have been largely overlooked by researchers and educators. Dialectical thinking refers to the ability to view issues from multiple perspectives and to arrive at the most economical and reasonable reconciliation of seemingly contradictory information and postures. Dialectical thinking is a form of analytical reasoning that pursues knowledge and truth as long as there are questions and conflicts. One inhibition to its use is that it can easily be abused--most modern uses of the dialectical paradigm known as the "Socratic Method" essentially are abuses of dialectical thinking. In an explicit teaching model, students are taught, through direct example (and non-example), that seemingly opposing views of reality can be reconciled into a meaning more reasonable than either of the seemingly contradictory positions. Implicit teaching methods include the "ReQuest" procedure, which engages students in loosely structured instructional conversation that contains the salient elements of reciprocily; the "Question Only" procedure, in which students are instructed to question the teacher repeatedly in order to learn all they need to know about an object; and the "Refutation Text," a means of reorganizing printed material to enhance comprehension. Two curricular models that could further advance dialectical thinking are the REAP/AnX system (based on a reading-writing-study strategy called Read, Encode, Annotate, Ponder) and a citizen leadership institute in which students wrote four-paragraph essays demonstrating the use of dialectical thinking for particular issues. In addition, the annotations gathered from the REAP system can be made available to a wider audience, stimulating a dialectic of creativity as the volume of responders increases. Dialectical thinking also has implications for teacher education and how research might best be conducted. (A figure critiquing a study of dialectical thinking and a figure presenting REAP annotation types are included; 31 references are attached.) (RS)

ED352632

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.
Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Anthony V. Manzo

Karen S. Garber

Julie J. Warm

Center for Studies in Higher-Order Literacy

University of Missouri-Kansas City

Kansas City, MO 64110

(816) 235-2478

Ula C. Manzo

Central Missouri State University

Dialectical Thinking: A Generative Approach to Critical/Creative Reading

"PERMISSION TO REPRODUCE THIS MATERIAL IN OTHER THAN PAPER COPY HAS BEEN GRANTED BY

Anthony V. Manzo

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)"

Running Head: Dialectical Thinking

CS011130

BEST COPY AVAILABLE

Dialectical Thinking: A Generative Approach to Critical/Creative Reading

It is difficult to begin a discussion of dialectical thinking without noting its antiquity and pedigree. Aristotle attributes the beginnings of dialectics to Zeno of Elea (Dunes, 1964). However, it is Socrates who is remembered most for raising it to its most recognizable form as pedagogical debate by question and answer (Dunes, 1964).

The word "dialect" comes from the Greek word for "discourse." A *dialectic* is a discourse, or dialogue, between opposing positions; *dialectical thinking* is its internalized equivalent. In this special form of dialogue, a position or thesis is examined in light of its opposing or antithetical position. The objective of dialectical thinking is not to win a debate or even support a position, but to find the position with the greatest rational evidence to support it. This may be the initial position, the opposing position, or some synthesis of the two.

Dialectical thinking is characterized by the attempt to consider all available empirical evidence. As such, it is an effort to rise above persuasion and rationalization, in which arguments are gathered in support of a pre-held position. While dialectical thinking itself is not empirical, it is inherently scientific because it brings the mind to the threshold of available evidence. Brought to this threshold, the mind is invited to create new hypotheses which, in turn, call for the acquisition of new evidence.

Dialectical thinking as discussed in this paper will refer largely to the disposition and ability to view issues from multiple perspectives, and as a personal strategy for arriving at the most economical and reasonable reconciliation of seemingly contradictory information and postures. Its

paradigmatic form of reducing views to two opposing positions will be used as a point of reference and proposed as a simplified means of teaching the more comprehensive process.

Educational Value

Dialectical thinking has several values in education that have been largely overlooked in contemporary times. We suggest some possible explanations for this apparent neglect ahead. For the moment, let's continue to consider its potential values.

First, dialectical thinking is generative: it excites *constructive* thinking more than *critical* thinking because it inherently invites syntheses or new possibilities to arise. Second, it is a clearer educational target than critical thinking because it has a paradigm that is easy to follow: thesis, antithesis, synthesis. Third, it is more comprehensive than critical analysis since it is not limited to a mere critique of a position, but always involves analysis of at least one opposing position. Fourth, it is a heuristic for discovering and using most other forms of higher-order thinking (e.g., inferential, applied, abstract). Fifth, it has advantages to society, since it serves as an agent for individual psychological learning and potentially for humankind's epistemological search for knowledge and meaning as well as that of individual learning. Finally, dialectic experiences have a way of becoming an internalized state that is self-generative and potentially self-initiating during silent reading and, more importantly, beyond the school walls. Dialectical thinking is not merely a lesson or a debate with a beginning, middle, and end, but a form of analytical reasoning that continues in its pursuit of knowledge and truth as long as there are questions and conflicts--both of which are in ready supply in modern life. In

a word, dialectical thinking provides a basic tool by which to strive toward the high educational goal of leading an "examined life."

Inhibitions

Despite these apparent benefits, there is the question of why dialectical thinking is not more widely understood and taught in our schools, and practiced in day-to-day affairs. The reasons, we believe, are plain and somewhat reversible. One inhibition to its use is that can easily be abused. Ironically, it was Socrates himself who infused an abusive element into the familiar dialectical paradigm known as the "Socratic Method." It is commonly known that Socrates used dialectical thinking as a pedagogical tool for bringing forth knowledge from students by inviting them to think along with him through the line of inquiry that had led him to a certain conclusion or position. This form of dialectic is more properly known as "maieutic" (May-ud-ik), from the Greek word for midwife.

While the purpose of the Socratic Method was to educate students in the process of making <u>provisional</u> discoveries, others have used it to indoctrinate fixed beliefs. This form of the dialectic can seem inauthentic, if not haughty and controlling. Religious leaders, for example, from Thomas Acquinas to Pat Robertson, have tended to engage in narrow dialectics that subtly delimit discussion to comparisons of fixed theses to oppositional "strawmen" that are implausible, emotionally unsettling, or unprovable. Hence, religious "proofs" for the existence of a god often comes down to a dialectic whose strength lies in the proposition that the opposing position is that there is no god. Of course, neither position can be "proven," but *disproving* the existence of a god is by far the more difficult position to argue. It is difficult to counter the intuitive implausibility of our ordered universe simply "happening" without some grand design and some initiating

force (the "prime mover" argument). It is emotionally unsettling to argue that there is no life after death. Most importantly, it simply cannot be "proven" that god does *not* exist without knowledge of everything that *does* exist -- and we can never have that. If one thing less than everything were known, that one thing could alter the truth of everything else that otherwise was "known." This is part of the reason for the fascination in scientific and professional circles with anomalies. They reveal possibilities that otherwise were considered impossible -- e.g., the "Rainman's" extra-ordinary capacity for numerical computation; the poor word caller's ability to derive meaning from print despite orally misread words, and so on.

Hence, most modern uses of the Socratic Method essentially are abuses of dialectical thinking, in that the paradigm is used to lead the learner to an inflexibly held position, rather than to the discovery of alternate propositions. This gives the intuitive impression that the dialectic is a pseudo-system of reasoning that is easily manipulated. In fact, the dialectic is merely a means of reaching a reasoned position based upon available data: the conclusions are always provisional and subject to change with new evidence.

Another inhibition to dialectics was previously noted as a positive attribute. It is the fact that it cannot be turned off easily once it is initiated. No matter how resourcefully it is used to control thinking and to direct conclusions, eventually the child or adult may continue the process on his or her own until they find the arguments that were not previously tested and dismissed. External validation for this is can be found in the small but persistent number of children of fundamentalist believers who become agnostics, and in the similar number of children of agnostics who find their way to organized religion.

Finally, dialectical thinking has at least one other feature that could be an inhibition to its use. By definition, it pits a given position or thesis against its absolute *opposite* position. Thus, when it is used to consider matters of heartfelt opinion or belief, it tends to raise emotions to a high pitch. Hence, it is potent and must be used skillfully. But that is the work of a professional tool: Like medicine, it can be dangerous. This can be disruptive to reading comprehension, even when the text ultimately supports the reader's views, as Lipson (1982) showed in a study in which Jewish children had their comprehension somewhat impaired merely by reading about the holocaust. Similarly, a dialectic is bound to be somewhat disruptive (but also educating) to a class with students representing different values, cultures, and lifestyles.

Dialectical Thinking Today: Reflections and Research

Despite a paucity of attention to dialectical thinking, its value has not gone unnoticed in modern schooling and literacy instruction. Researchers at The Center for the Study of Reading wrote the following in 1977 (in an otherwise unpublished technical report):

> The eventual aim [of all reading instruction] is to train the child to <u>think dialectically</u>, in the sense of the Socratic teaching method. In the Socratic method, the teacher constantly questions the students' basic assumptions and premises, plays the devil's advocate, and probes weak areas, using such techniques as invidious generalizations, and counter-examples (Anderson, 1977; Brown, 1977; Collins, 1977). The desired end-product is that the student will

> come to perform the teacher's functions for himself via self-interrogation. (Brown & Campione, 1977, p. 36)

More recently, Richard Williams and associates have undertaken an experimental investigation of the effects of dialectical thinking. Williams (1983) notes that the concept of the dialectic, or oppositionality, has not been extensively researched in the literature on human learning and cognitive psychology. This is the case, he speculates, because the concept of dialectical meaning and the process of dialectical reasoning do not fit neatly, if at all, in the dominant models of either field. Human learning has been dominated by traditional associationistic psychology, and reduced to a special case of the operations of similarity and/or contiguity since John Stuart Mills, the British empiricist, first saw it as such (see Deese, 1965 and McNeill, 1966 as examples). In the field of cognitive psychology, contemporary research related to dialectics has focused on oppositionality as a linguistic feature rather than as a natural modus operandi of the human mind (Williams, 1983). Williams and associates conducted four studies addressed to the question of whether dialectics should be viewed as a product of complex linguistic processes or as a quality of humanity. If it is the latter, it would seem to bode well for teaching and learning since it would be in some sense innate and natural, and hence fertile ground for "growing thinking" (as President Clinton might put it). One of the more intriguing aspects of these studies is the researchers' ingenious use of rather traditional research paradigms. See Figure 1 for a critique of Williams' studies and the implications of each to education.

Figure 1

Critique of Williams' Studies of Dialectical Thinking

In Williams' first study, he investigated the dialectic process in affective assessment. Subjects were asked to learn opposite and same word associations that had been paired for liked and disliked words. An analysis of their learning showed that both the same and opposite groups had a positive reinforcement effect on learning. This finding seemed to extend Rychlak's (1977) Logical Learning Theory, that says people most often learn what they like faster and more easily than what they dislike. However, Williams' (1978) findings show that that which they disliked helped to further define what they liked, and hence consideration of oppositionality, or antonymy, which inherently is the dialectical process, is part of affect and cognition.

The second study was of the relational ties between previously used paired associates that were modified to link nonsense syllables with four affirmations (Rychlak & Williams, 1983). Subjects learned four affirmations for each of two root nonsense syllables. The results showed that both opposite and positive affirmations, and therefore, strategies, would facilitate learning. While this first appeared to be in contrast to the findings of some earlier studies, it was found to be supported by many others that had been suppressed, or simply misinterpreted as anomalies of Rychlak's Logical Learning Theory. Importantly, too, it was found that opposition was significantly more facilitative in older subjects than younger ones. As an aside, this suggests that younger subjects may be epistemologically driven more by likes than dislikes, while older and more experienced subjects by dislikes more than likes. This would seem to

suggest that logic is on the side of carefully regulating the rate and nature of exposure to children of subjects and learning tasks which they might find difficult, since once they acquire a dislike, it rules their decision making and subsequent motivation to learn and do in that realm thereafter.

Williams' third study was designed to show the linearity of conventional "demonstrative thinking" as compared with dialectical, or oppositional strategies. Working again with nonsense syllables, his results showed that the dialectical, or non-linear affirmational strategy, is more facilitative of learning even in the absence of real semantic meanings.

In the fourth study (Williams, 1983), an incidental learning paradigm was used with real words to replace the paired associate paradigm. Subjects learned the words intentionally or as part of an affective/non-affective semantic task. The results showed that antonym pairs were recalled much better by the two semantic task groups.

When added to the other literature on antonymy, Williams (1983) concluded that these four studies suggest that oppositional thinking is important to development, learning, psychological health, and creativity. This conclusion supports earlier speculations by Manzo and Sherk (1977) which led them to endorse and extend Postman and Weingartner's (1969) concept of "languaging." Manzo and Sherk (1978) proposed that children should be taught to use language for mediational (i.e. dialectical) purposes more so than merely for communication purposes. Recent brain research indicates that there may be physical evidence of the innate nature of antonymy. While the left brain may be orderly and logical, it also is rather blithe spirited; the right brain

tends to be more suspicious, if not dour and cynical (Segalowitz, 1983). Given these oppositional characteristics of the brain, it is easy to imagine how a "back and forth" dialectic may have a physiological as well as a psychological reality.

The logic for dialectical thinking as an element of creativity is particularly interesting and germane to our more recent conclusions, and those of others such as Howard Gardner (1986) and Timothy Thompson (1991). We have been of the opinion for some time that creative problem-solving can not occur without unencumbered "back and forth" reasoning. It is in this way that problems come to be better defined, problem solving attitudes are evoked, and possible resolutions can be more effectively tested for plausibility and fit. Thompson and Gardner emphasize the simple logistical value of dialectical thinking as a catalyst to creativity. "Creativity," writes Thompson, "often occurs through a spontaneous intermingling of ideas, one person playing off of another's thoughts, improvisations between members, or the mutual muddling and playfulness that characterizes creative groups" (1991, p. 43). He further adds, by way of making explicit what is implicit, that "creativity is as much a communication phenomenon as it is a cognitive one" (1991, p. 43). In our judgment, this is true whether the conversation is conducted externally or internally, as in the act of reading and reflecting, now more commonly known as *interactive reading* (Rumelhart, 1977). Thus, external classroom dialectics could serve as an instructional bridge from literal level comprehension and rote recall to the internalized dialectics of critical and creative reading and thinking.

When these implications are considered, instructional approaches to dialectical thinking seem to come much more easily to mind than when the target is the more generic objective of critical thinking. Furthermore, as

previously noted, dialectical thinking also tends to advance constructive reading and thinking in ways that logically surpass critical thinking (in its narrowest sense), simply because it contains the demand feature of looking for positions that oppose one's own, and seeking a synthesis of conflicting views.

Intervention

Five classes of intervention come to mind for developing the elements of dialectical thinking. In a paper presented at the recent National Reading Conference, Ann Pace described one in Jewish law that is based on adding commentaries of contemporaries to books such as the Torah and the Talmud. Today we would call these adjunct or embedded aids. The others could be categorized roughly as explicit, implicit, curricular, and those addressed to the dialectic of creativity. Consider first an explicit model.

An Explicit Teaching Model

A. First, describe and explain dialectical thinking. It might simply be called "effective thinking," "clear thinking," "back and forth" reasoning, or "conflict resolution," depending on the students' age, grade, and situational conditions and needs.

B. Collect a set of arguable propositions worthy of attention and discourse. (The objective here is to select "practice" materials that are interesting, but not so emotionally charged as to disrupt rather than focus attention.)

C. Show <u>non</u>-examples of dialectical thinking (cases where only pro's or only con's are considered), then show <u>appropriate</u> examples (where both pro's and con's are considered). Show how to create reasonable statements that reconcile opposing positions.

D. Go back and label each step in the process: thesis, antithesis, and synthesis.

E. Provide follow-up practice, as with comparison and reconciliation of oppositional proverbs.

In the explicit teaching model students are taught, through direct example (and non-example) that seemingly opposing views of reality can be reconciled

into a meaning that is more reasonable, and usually more workable, than either of the seemingly contradictory positions. Here now are some implicit, or indirect means of advancing dialectical thinking.

Implicit Teaching Methods

Epistemological drive -- or the search for knowledge, meaning, truth, and significance -- seems to be best advanced by methods that employ an "instructional conversation" (Tharp & Gallimore, 1989) and some form of reciprocal interaction (Manzo, 1969). Three such methods are described below.

A. The ReQuest Procedure (Manzo, 1969) was designed as a way to engage students in a loosely structured instructional conversation that contains the salient elements of reciprocity. In this method, the teacher and students take turns questioning one another about the first few sentences of a larger text, as a way to formulate a purpose or question to guide silent reading of the remainder of the text. The questioning often begins in a fragmented and oppositional way, but soon becomes complementary. The dialogue seems to mature best where comprehension of the piece -- or the product-drive to answer the purpose-setting question -- is treated with less importance than is the more process-guided examination of whether the best purpose or question was raised. This process-guided objective is analogous to the goal of effective dialectical thinking: to maintain an ongoing evaluation of whether the best alternatives were entered into the examination or, in other words, whether the best questions were raised. The ReQuest Procedure has the further advantage of providing the student with a model of several pertinent learning behaviors, such as reflection, question asking, question answering, critical analysis, and social deportment, as well as reason and opportunity to emulate and refine

these. It also tends to promote constructive and collaborative thinking as the teacher and the group gradually depart from an early inclination to see who can ask the trickiest questions, to who can raise the most thought-provoking and facilitating ones. There also are reasons to believe that this type of reciprocal conversation nurtures empathy between discussants (c.f., Manzo & Manzo, 1993), and builds "reserves" of trust that can ease the way through the inevitable conflicts that arise in classroom and life situations.

B. Question Only is a related procedure that is adaptable from kindergarten to college levels. Students are instructed to question the teacher in order to learn all that they need to know about an object (Manzo & Legenza, 1975) or topic (Manzo, 1980). The teacher answers questions completely, but does not elaborate beyond the explicit question (rather like what occurs when an attorney questions a reluctant witness). The teacher then gives a criterion referenced test of the information he or she believes *should* have been elicited, whether it was or was not. This provides feedback to students on how well their questions paralleled the lines of inquiry that are the organizing principles of the topic. Here again, the student must become extremely active in pursuit of knowledge. This arrangement casts the student in a role that is quite different from a transmission model of education in which the student is seen as a relatively passive receiver of information, with little personal control over the path taken. In Question-Only, the purpose is not for students merely to acquire the traditional topical information that might be provided, but to learn the subtle art of using questioning strategies necessary in a transaction model: strategies that enable them to uncover and make

meaning *from* topical information (or more generically, to acquire the habit of converting latent curiosity into manifest curiosity -- not merely the stuff of knowledge acquisition, but of knowledge generation).

C. Refutation Text is a means of reorganizing printed material to enhance comprehension. Although the evidence is not crystal clear, there are reasons to believe that textual material that is prepared with reference to an opposing position is more effectively and deeply learned (Alvermann Hynd, 1989; Guzzetti, Snyder, & Glass, 1992; Maria & MacGinitie, 1987). So, for example, text describing Darwinian evolutionary theory should be better grasped and recalled when presented *in contrast to* the attractive but unproven Lamarkian theory which argues that acquired traits are genetically transferable. Perhaps the reason that information about an opposing state may not always contribute to learning a targeted concept is because it involves learning at least two concepts rather than one. While comparison of opposing positions should lead to better complementation, and thus better understanding, it also increases the number of words and places for miscues to occur, and for irrelevant but contiguous emotions and values conflicts to arise that can disrupt learning. However, once these obstacles are overcome, consideration of opposing theories is most likely to have several positive effects. It is likely to: 1) help students to negate thoughts that may lead them down disproven paths; 2) create a richer view of acceptable theory by calling attention to the substructure of previously held and disproven theories that, in a manner of speaking, support the current theory; and, most importantly, 3) give students an opportunity to give fair consideration

to oppositional positions that may contain some latent value. In larger terms, consideration of positions that oppose current conventions tends to keep these alternate considerations on "life support" as time and events pass that may allow for their resuscitation. It also can have the effect of reminding each generation of errors in certain compelling but fallacious ideas, such as forced racial and ethnic "purity," or the efficiency of a benign despot.

Curricular Contribution of Dialectical Thinking

Walter C. Parker and associates (1988) studied the relationship between curriculum design and improvement in student ability to reason creatively. He did so using data gathered in an evaluation of a citizen leadership institute for high school students. This institution differed from others like it in that its objective was recast slightly from *critical thinking* to a *dialectical* version of critical thinking. The reasoning of the institute leaders was that modern affairs in civics required not so much an ability to defensively protect a point of view, but to engage in a more intentionally open and constructive dialectical for on-going examination and problem-solving.

Drawing upon the grounded research tradition made popular by Glaser and Strauss (1967), hypotheses were generated on the relationship of particular design features to improvements in student reasoning. The dependent variables were derived from a comparison of a pre and post treatment essay written to a particular design. The essay was to have four paragraphs: one to summarize what the subject knew about an issue, a second to state their position (with reasons), a third to argue against their position (the dialectic of opposition), and a fourth to state a conclusion that contained a new

synthesis. Comparison of these pre and post treatment essays showed no change in the *quantity* of dialectical reasoning (as measured by lines written of "otherside," or oppositional reasoning), but significant change in the *quality* of reasoning generated on both sides of each issue. The low incidence of change in number probably can be attributed to the powerful demand effect of the four paragraph design -- a design that should be noted for its obvious value in instruction.

Let's consider another curriculum modification that could further advance dialectical thinking, but more particularly the dialectic of constructive thinking. It is a response-to-text system that involves some of the fundamental elements of effective critical-creative process.

REAP/AnX System. The Annotation Exchange (AnX) system is based on a reading-writing-study strategy called REAP or Read, Encode, Annotate, Ponder (Eanet & Manzo, 1976). REAP is used to teach students a variety of possible means for responding to text. In all, about ten representative annotations, or response modes, are taught. These are designed to expose students to a relatively complete dialectical examination of a piece from several perspectives (see Figure 2 for examples).

Figure 2

REAP Annotation Types

Reconstructive, or Transmissional Annotations

1. **Summary annotation**-- condenses the selection into a concise form. In fiction, it is a synopsis of the plot and main characters; in non-fiction, it is an unelaborated statement of key ideas.

2. **Precise annotation**--an incisive thesis statement of the author's primary proposition, with all unnecessary words removed. The result is an uncluttered, telegram-like message.
3. **Provocative annotatin**--a statement, usually in the author's words, that symbolically illustrates the central idea of the selection in a way that tends to provoke a response.
4. **Question annotation**--converts the author's main point into a question that the narrative is written to answer.

Constructive, or Transactional Annotations

5. **Personal view annotation**--answers the question "How do one's personal experiences, views and feelings stack up against the author's main idea?"
6. **Critical annotation**--a supportive, rejecting, or questioning response to the main idea. The first sentence should restate the author's position. The next sentence should state the annotator's position. Additional sentences should explain how the two differ.
7. **Intention annotation**--states and briefly explains the annotator's impression of the author's intention, plan, and purpose in writing the selection. This is a variation of the critical annotation.
8. **Motivational annotation**--speculates on the author's likely experiences and motive(s) for having created or written the piece. This too is a form of critical annotation, with particular emphasis on searching inside oneself to discover what might be motivating the author.
9. **Probe annotation**-- identifies practical questions that merit further attention before an evaluation of the author's points can be reached. This requires identifying supporting points and thinking about consequences.

10. **Creative annotation**--an attempt to come up with an alternative view or resolution. This annotation type usually requires a question or further bit of stimulation to get the creative juices flowing.

While the REAP annotations may appear to be more erudite than most students can handle, they are very close to the responses of fifth and sixth graders in "grand conversations" examined and categorized by Eeds and Wells (1989): personal associations, retellings, interpretive statements, evaluations, and reference to literary elements or themes.

Initially, REAP is taught as a system of writing for purposes of personal study and class discussion. To expand this into an AnX program, the annotations can be gathered, filed, and made available for subsequent readers -- both those seeking aid in comprehension and those seeking different possible perspectives on interpretation and meaning. This reader-helper-sharing system can be attained by filing annotative responses in a loose leaf binder or in a computer based system. The storage system then becomes a standing invitation to students to peruse relevant annotations written on a piece that they are about to read or are reading. There also is an implicit invitation to all users to add an annotation of their own from some different or better articulated position, or to write in support or opposition to annotations already in the system. In this way, an electronic dialogue may emerge among persons who may never meet face to face, but who have gathered themselves into an extant dialectic. The school based system can be further enriched by inviting annotations from teachers, community people, and even from the living authors of works that prompted the original discourse.

The advantage of this larger system is the sheer volume of responders who otherwise would be unheard from under current reading practices. This should

also increase the representation of different perspectives, and hence increase the likelihood of the discourse growing wiser and more insightful than traditional class discussions alone. More to the point, there should be an increased likelihood of highly insightful and constructive responses occurring, due to: 1) the new entrants into the dialogue; 2) the impact of available models of responding and dialoguing with a larger audience; 3) the sheer energy and synergy of colliding perspectives; and even, 4) an increased probability of serendipitous ideas emerging from the cumulative effect of the pros, cons, analyses, and questions that are articulated.

While our experience with this form of electronic 'dialectical of creativity' is limited, one expected outcome has a suitable analog in music. John Phillips, the 1960's creative mind behind the "Mamas and Papas," is said to have driven the group to near mutiny by insisting that they sing the piece "Monday, Monday" over and over again, until their harmonies rose to a blend that produced what he called "Harvey," the spiritual quality of a 5th voice. Importantly, once the group heard it, their objections ceased and they were seldom satisfied with anything less.

This is the level of criticism and creativity that students need to experience in order to set their sights to the levels of higher-order literacy and meaning that an effective dialectical can induce. Significantly, it appears that much of what it takes to approach this plateau is merely to ask for it. Baker and Schutz (1972) report a study with two groups of engineers, one asked simply to critique a proposed plan, and another asked to do so constructively. Striking differences were noted in the way the problems and proposed solution were addressed. There also were great differences in the number and quality of plausible solutions generated by the group that brought little more than a constructive mind set to the problem. Our explanation for

this outcome is that the constructive mind set introduced an oppositional consideration to the tendency to merely criticize, leading this group to see values and possibilities as well as problems.

We are currently planning a replication study with children in an effort to extend this finding in a classroom based reading-writing environment. In a compatible vein, we also hope to conduct studies in conjunction with our School of Medicine that might help to further identify the brain areas involved in dialectical thinking. As noted earlier, brain research has led us to hypothesize that in dialectical thinking, "whole-brain" operation may be a physiological fact as well as a metaphor. If dialectical thinking is a natural function of the anatomical organization of the brain, it may be something that does not need to be *taught*, so much as freed from social inhibitions and coached to higher levels.

Adding Dialectical Thinking to the Diet of Teachers, Teacher Trainers, and Researchers

A timely piece by Beth Ann Herrmann and Jeri Sarracino (1992) in the recent National Reading Conference proceedings reminds us that everything said above about dialectical thinking also applies to teacher education, and to how research might best be conducted. To oversimply, Herrmann and Sarracino set out a project to teach teachers to teach strategic reasoning. One element in their training model involved dialectical discourse on conflicting views of literacy teaching. The dialectic proved so effective that it caused them to alter their initial research objective from testing their design for training teachers to teach strategic reasoning, to permitting them to evolve their own direction and rationale for how they should think about literacy teaching -- something they "came to regard as far more important than [their] original goal" (p. 334). The experience further led them to conclude, as did Duffy

(1992), that most teacher training models may be "inadvertently disempowering to teachers because they minimize higher level thinking" (Herrmann & Sarracino, 1992, p. 337). More importantly, their research design seemed to have been touched by the dialectics that they initially tried to use to stir their professional school students toward their belief system. Instead, it steered them to considerations that they were not particularly open to at the onset. A similar vision, with an accompanying "invitation to dialogue" with teachers is reported by Allen, Buchanan, Edelsky, and Norton (1992) in the same yearbook. In noting these reports, we cannot help but wonder if we are not seeing the first signs of "gene-splicing" the search-for-meaning nature of the dialectic onto traditional research designs, toward the development of a new paradigm that is better characterized as a search more so than as re-search.

References

Allen, J., Buchanan, J., Edelsky, C., & Norton, G. (1992). Teachers as "they" at NRC: An invitation to enter the dialogue on the ethics of collaborative and non-collaborative classroom research. In C. K. Kinzer & D.J. Leu (Eds.) Literacy Research, Theory, and Practice: Views from Many Perspectives: Forty-first Yearbook -National Reading Conference. Chicago, IL: National Reading Conference, 357-365.

Alvermann, D. E., & Hynd, C. R. (1989). The influence of discussion and text on the learning of counterintuitive science concepts. Paper presented at the annual meeting of the National Reading Conference, Austin, TX.

Baker, R. L., & Schutz, R.E. (Eds.). (1972). Instructional product research. NY: Van Nostrand.

Brown, A. L., & Campione, J. C. (1977). Memory strategies in learning: Training children to study strategically. Technical Report #22, University of Illinois at Urbana-Champaign: Center for the Study of Reading.

Deese, J. (1965). The structure of associations in language and thought. Baltimore: The Johns Hopkins Press.

Duffy, G. (1992). Learning from the study of practice: Where we must go with strategy instruction. Paper, American Educational Research Association, San Francisco.

Dunes, R. (1964). Dictionary of Philosophy (Editor, 15th edition). Patterson, NJ: Littlefield, Adams, and Company.

Eanet, M. G., & Manzo, A. V. (1976). REAP -- A strategy for improving reading/writing/study skills. Journal of Reading, 19, 647-652.

Eeds, M., & Wells, D. (1989). Grand conversations: An exploration of meaning construction in literature study groups. Research in the Teaching of English, 23, 4-29.

Gardner, H. (1986). People. The Cleveland Plain Dealer. Oct.

Glaser, B., & Strauss, A. (1967). Discovery of grounded theory. Chicago: Aldine.

Guzzetti, B. J., Snyder, T.E., & Glass, Gene V. (1992). Promoting conceptual change in science: Can texts be used effectively? Journal of Reading, 35, 642-649.

Herrmann, B. A., & Sarracino, J. (1992). Effects of an alternative approach for teaching preservice teachers how to teach strategic reasoning: Two illustrative cases. In C. K. Kinzer & D.J. Leu (Eds.) Literacy Research, Theory, and Practice: Views from Many Perspectives: Forty-first Yearbook -National Reading Conference. Chicago, IL: National Reading Conference, 331-339.

Lipson, M. Y. (1982). Learning new information from text: The role of prior knowledge and reading ability. Journal of Reading Behavior, 14, 243-262.

Manzo, A. V. (1969). The ReQuest procedure. Journal of Reading, 13, 123-126.

Manzo, A. V. (1980). Three "universal" strategies in content area reading and languaging. Journal of Reading, 24, 146-149.

Manzo, A. V., & Legenza, A. (1975). Inquiry training for kindergarten children. Journal of Educational Leadership, 32, 479-483.

Manzo, A. V., & Manzo, U.C. (1993). Literacy Disorders: A Holistic Approach to Diagnosis and Remediation. Fort Worth, TX: Harcourt, Brace, Jovanovich.

Manzo, A. V., & Sherk, J.K. (1977). Reading and languaging in the content areas. University of Missouri-Kansas City, Unpublished manuscript.

Manzo, A. V., & Sherk, J.K. (1978). Reading and "languaging in the content areas" : A third generation approach. The New England Reading Association Journal. 13, 28-32.

Maria, K., & MacGinitie, W. (1987). Learning from texts that refute the reader's prior knowledge. Reading Research and Instruction, 26, 222-238.

McNeill, D. (1966). A study of word association. Journal of Experimental Child Psychology, 23, 57-77.

Parker, W. C., Wendling, L., & Mueller, M. (1988). Critical thinking and curriculum design in the civic domain. Paper presented at the American Educational Research Association, New Orleans.

Postman, N., & Weingartner, C. (1969). Teaching as a subversive activity. NY: Delacorte Press.

Rosenblatt, L. M. (1969). Towards a transactional theory of reading. Journal of Reading Behavior, 1 31-49.

Rumelhart, D. (1977). Toward an interactive model of reading. In S. Dormic (Ed.) Attention & Performance, Vol. 1. Hillsdale, NJ: Erlbaum.

Rychlak, J. F. (1977). The psychology of rigorous humanism. NY: John Wiley and Sons.

Rychlak, J. F., & Williams, R.N. (1983). Dialectical human reasoning: Theoretical justification and supporting evidence drawn from the method of triassociation. Unpublished manuscript.

Segalowitz, S. J. (1983). Two sides of the brain. Englewood Cliffs, NJ: Prentice-Hall.

Tharp, R. G., & Gallimore, R. (1989). Rousing minds to life: Teaching, learning, and schooling in social context. NY: Cambridge University Press.

Thompson, T. N. (1991). Dialectics, communication and exercises for creativity. Journal of Creative Behavior. 25, 43-51.

Williams, R. N. (1978). The dialectical nature of affective assessment. Unpublished M.S. Thesis, Purdue University.

Williams, R. N. (1983). Dialectics and meaning: The effects of opposition in cognition and learning. Paper presented at the Annual Convention of the American Psychological Association, Anaheim, CA.